VPAAC conclude that as long as the video description service is readily and predictably available, no single technical method for carriage of video description is required.

2. Consumer position

The consumer members of the VPAAC recommends that the FCC consider how best to facilitate a transition, including timelines, for an orderly transition to support a strategy by broadcasters, MVPDs and consumer electronics manufacturers to deliver multiple simultaneous ancillary audio services, so that both Spanish (or other alternate languages) and video description could be provided for the same program.

C. Point of contact

The VPAAC discussed consumers' interest in having MVPDs and local broadcast stations designate a point of contact to address issues that may arise relating to the provision of video described programming. Consumers pointed to the FCC's rules regarding a contact person for closed captioning issues as the model. While this issue is not part of the VPAAC's mandate, consumers' desire for assurance that distributors will be able to respond to inquiries about video description is recognized. Therefore, the VPAAC recommends that MVPDs work to ensure that appropriate customer care representatives are able to assist blind and visually impaired customers in resolving issues relating to access to video description, e.g., when the description audio isn't available. The VPAAC further recommends that MVPDs and local broadcast stations establish processes to address both immediate and longer term customer concerns regarding their video description service. For immediate customer concerns, the VPAAC recommends that MVPDs and local broadcast stations provide either the customer service number, or alternatively, contact information and procedures similar to those articulated in the Commission's closed captioning rules, and that any calls or inquiries received by MVPDs and local broadcast stations using this contact information where a distributor is not immediately available should be returned or otherwise addressed within 24 hours. *See* 47 CFR Sec. 79.1(i).

D. Persistence of secondary audio service

The VPAAC recommends that best efforts be undertaken to ensure that the secondary audio channel should not be programmed with silence. It is further suggested that main program audio be inserted in the secondary channel when neither descriptions, nor an alternate language, nor

emergency information (as proposed by the VPAAC report on Emergency Information) are present.

E.   Descriptions on internet content

The VPAAC was not able to fully explore the topic of delivery of video description over the internet. The brief summaries here illustrate areas of agreement among many members that further effort would be required to develop internet technologies to accommodate consistent delivery of programming with description. Areas of disagreement include the extent of technology development, as well as what programming could be provided over the internet with description. Finally, we include an alternative view that internet delivery is beyond the scope of the VPAAC.

1.   Consumer position

Internet streaming technologies used for content distribution will have to add features to move to a state of being "Description Ready." Many streaming platforms, especially those that use adaptive bit-rate technologies, will have to be modified and add functionality to support the incremental audio component(s) needed to become capable of storage, serving, transport, and user selected playback of video description.

Currently, many streaming systems have the limitation of packaging one video with one audio stream as the final asset for serving to customers.

Today, the *one audio* approach is the primary audio for delivery over the sometimes-bandwidth-constrained Internet pipe. Enabling user selection of video description would require new system designs, some of which are in development and exploit the new HTML5 web architecture, so that the end-user could select video description on an asset-by-asset basis with the server sending the proper video and selected audio to each user. Once new system designs are developed and deployed, content would need to be packaged with added video description tracks that may have been derived from and transmitted via broadcast or other means. We recommend such deployment, once developed and fully tested, focus on new (post-rule) content initially, applied to the programming subject to FCC video description requirements for broadcast and cable networks.

2.   Industry position

Internet streaming technologies used for content distribution will have to add features to move to a state of being "Description Ready." Many streaming platforms, especially those that use adaptive bit-rate technologies, will have to be modified and add functionality to support the incremental audio component(s) needed to become capable of storage, serving, transport, and user selected playback of Video Description.

Currently, many streaming systems have the limitation of "packaging" one video with one audio stream as the final asset for serving to customers. Today, the *one audio* approach is the primary audio for delivery over the sometimes-bandwidth-constrained Internet pipe. Enabling a user's selection of Video Description would require new system designs – so that the end-user could select Video Description on an asset-by-asset basis with the server sending the proper video and selected audio to each user. Once new system designs are deployed, their already-packaged content archives will have to be re-packaged before being capable of adding the Video Description 'tracks' that may have been transmitted via broadcast or other means. Even presuming the Video Description tracks are 'as-aired' in a previous exhibition, the repackaging of the content archives is a significant work effort.

3. Alternate Industry position

At least one Industry member believes that it is premature and unnecessary to make recommendations or suggest technical approaches to video description on the Internet. The CVAA does not grant authority to the FCC in this area. As a result, this report should focus on the complex issues at hand in order to meet the required delivery of video description through broadcast and MVPD systems.

F. Description quality

The VPAAC has spent considerable time and effort on the topic of description quality. While there was agreement on the fact that some best-practices should be included in this report as a guide, the VPAAC was unable to come to a consensus on recommendations regarding quality of description.

1. Consumer position

Consumer members with vision loss believe that description quality is very important in the successful implementation of video description. Consumer members submitted information about description quality gathered from best-practice guidelines. The guidance information and further resources are listed below. In addition, given the importance of ensuring high-quality video description, the FCC is urged to consider undertaking a Notice of Inquiry on issues related to description quality.

The essential elements of video description have been developed and refined by various providers for nearly 30 years. These basic elements of effective video description include:

- Describe what is most essential for the viewer to know in order to understand and appreciate the scene being described.
- Prioritize description so that it can be provided within the pauses between program dialog or critical sound elements including sound effects, music, and program ambiance.
- Insert descriptions of key visual elements (actions, costumes, gestures, facial expressions, scene changes, and onscreen text) during pauses in program dialog.
- To ensure consistency, use the language in the program as a guide to vocabulary, sentence structure and pacing.
- Main program audio and added video descriptions should be properly and actively mixed so that the descriptions can be clearly heard when voiced and so that main program audio quality is maintained. Every effort should be made to produce a clean finished copy, i.e., removing extra ambient sounds and ensuring descriptive tracks are appropriate to the action with which they are aligned.

Other guidance that has been found to be effective for description includes:

- Clarity: Use "everyday" terms, and limit the use of slang or jargon unless appropriate to the content/image being described.
- General to the Specific: Start generally, creating a context, then move to details to enhance understanding and appreciation.
- Vocal delivery should be appropriate to the nature of the material being described. Narrators' voices must be distinguishable from other voices in a production, but they must not be unnecessarily distracting, as with recognizable celebrity voices or inappropriate accents.
- Identify color when it is vital to the comprehension of content; use basic colors and shades.
- Describe objectively without personal interpretation, censorship, or comment.

It is recommended that the entities covered by the mandate for video description, ABC, CBS, Fox, NBC, USA, the Disney Channel, TNT, Nickelodeon/Nick at Nite, and TBS, provide description that adheres to best-practice guidelines.

2. Industry position

Industry members of the VPAAC recommend that entities affected by the requirement provide good quality video description. The following resources represent current published and ongoing discussions regarding best practices in video description:

3. Resources

The following resources represent a consensus list of references among the Consumer and Industry positions.

- Described and Captioned Media Program - Description Key
  http://www.dcmp.org/descriptionkey/

  The Described and Captioned Media Program, with funding from the U.S. Department of Education, established the "DCMP Description Key." The Description Key is a set of guidelines based on a review of best practices to facilitate video description of educational media.

- ITC/OFCOM Guidance for Standards on Audio Description
  http://www.ofcom.org.uk/static/archive/itc/itc_publications/codes_guidance/audiodes cription/index.asp.html

  This document, produced in the United Kingdom in 1996, represents the first guidance provided for the production of audio description.

- American Council of the Blind "Audio Description Project" Guidelines/Best Practices http://www.acb.org/adp/ad.html

  A work in progress, this document is the first effort in the United States to produce user-focused guide to quality audio description. The document is a collation of commentary from a range of description guidelines produced around the world and is coordinated by the ACB's Audio Description Project committee and a group of experienced description consumers and practitioners. Further, the document is available on a "wiki" website for commentary by description enthusiasts around the world.

- Accessible Content Best Practices Guide for Digital Environments: Descriptive Video
  http://www.mediac.ca/pdf/DVBPGDE_Version_1.docx

  This document, produced in Canada, is the most recent effort to establish best practices and will be updated and reviewed on an ongoing basis.

- Effective Practices for Description of Science Content within Digital Talking Books
  http://ncam.wgbh.org/experience_learn/educational_media/stemdx

  WGBH's National Center for Accessible Media (NCAM) received a National Science Foundation (NSF) grant to research and document effective practices for providing meaningful descriptions of non-text science content for post-secondary students or scientists who have vision loss, in collaboration with the American Foundation for the Blind. The research resulted in publication of "Effective Practices for Description of Science Content within Digital Talking Books"

APPENDIX A - CALM ACT

Previous sections of this report detail the method(s) for how video description is created by the content producer, and how each broadcaster and MVPD carry video descriptions and associated metadata to the consumer. It is important to note that those parties adding descriptions to an audio track may need to consider the requirements set forth in the CALM Act ("Commercial Advertising Loudness Mitigation Act")[23], and the associated FCC Rules.[24] The CALM Act required the FCC to incorporate into its rules on December 2012 a reference to the Advanced Television Systems Committee's ("ATSC") recommended practice A/85 *Techniques for Establishing and Maintaining Audio Loudness for Digital Television*.[25] All broadcast advertising-supported programming, including that containing video descriptions, will need to conform to the techniques defined in ATSC A/85 to control audio loudness in commercial advertisements. Further, it is understood that other programming is required to comply with ATSC A/85 by specific agreements and arrangements between individual MVPDs and content providers.

The method for adding video descriptions to programming is achieved by creating a unique audio channel composed of the original dialogue and sound effects with the additional dialogue of the descriptions. This inclusion of additional dialogue to the original soundtrack will yield a unique audio channel with characteristics that differ from the original soundtrack. It is expected that these new characteristics will need to independently conform to ATSC A/85. What is unknown at this time is if, after the inclusion of the video descriptions, the narrative audio will generally be considered to be the "anchor element"[26] for purposes of compliance with ATSC A/85. If so, the audio level of the narrative channel may be different from that of the primary audio channel, and adjustments in program loudness in the narrative channel may need to be made to ensure it conforms to ATSC A/85. It is expected that programming containing video descriptions can easily meet the CALM requirements so long as the method of loudness measurement accounts for the additional narrative audio and unique audio mix of the video description service.

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[23] The Commercial Advertisement Loudness Mitigation ("CALM") Act, Pub. L. No. 111-311, 124 Stat. 3294 (2010) (codified at 47 U.S.C. § 621).

[24] 47 C.F.R. §§73.682(e) and 73.8000 (broadcast rules) and 47 C.F.R. §§76.602 and 76.607 (MVPD rules).

[17] *In re Implementation of the Commercial Advertisement Loudness Mitigation (CALM) Act*, Notice of Proposed Rulemaking, MB Docket No. 11-93 (May 27, 2011) ("Notice").

[26] A/85, Section 3.4 (Definitions) defines "Anchor Element" as "Anchor Element – The perceptual loudness reference point or element around which other elements are balanced in producing the final mix of the content, or that a reasonable viewer would focus on when setting the volume control."

APPENDIX B - ACCESSIBLE TEXT FOR DIAGRAMS

This section provides an accessible textual description of the figures within the body of the document.

A. Figure 1. High Level Distribution Summary

Described programming begins with three possible entities:

- National Broadcast TV Network
- Syndicated Programming
- National Non-Broadcast TV Network

Both the National Broadcast TV Network and Syndicated Programming flow to the Local TV Broadcast Station; Syndicated Programming may also be sent to a National Non-Broadcast TV Network. National Non-Broadcast TV Network programming and Local TV Broadcast Stations feed to three types of distributors:

- Cable Distribution
- DBS (satellite) Distribution
- IPTV (Internet) Distribution

In addition, a Local TV Broadcast Station may also go out "Over-the-Air"; these local feeds, along with National Broadcast TV Network and National Non-Broadcast TV Network signals, may flow directly to WEB Based Video Sites (represented by dotted lines on the flow chart).

Finally, all signals are received by the TV Audience via:

- CECB (Coupon-Eligible Converter Box) STB (Set-Top Box) for Over-the-Air broadcasts (these programs may also be delivered directly to the TV Audience)
- Cable STB for Cable Distribution
- DBS STB for DBS Distribution
- IPTV STB for IPTV Distribution
- PC/Internet Device for WEB Based Video Sites

Link back to document

B. Figure 2. Detailed Distribution Path – Cable

The diagram depicts video described programming sources into a typical cable headend, processing flows within the headend, and final distribution out of a cable headend to the cable customer. Video described programming sources fit into two categories:

- Local Broadcast TV
- National Non-Broadcast TV Network

The signals from both categories flow into the headend service processing device which multiplexes digital services together into transport streams and inserts advertising spots on select channels.

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The Local Broadcast TV station sources flow to additional headend equipment which decode and convert the broadcaster's digital signal into an analog version of the signal. The analog signal then flows to an analog modulator and into a standard definition digital video encoder, which in turn flows to the central service processing device.

All of the digital signals from the service processing device flow into digital modulators. Many of the standard definition non-broadcast TV networks will also flow from the service processing device to service decoders which decode these digital signals to analog signals. These analog signals in turn flow to the analog cable modulators.

The outputs of both the analog and digital modulators are combined and distributed to the cable customer over the service provider's hybrid fiber/coaxial cable distribution system until final reception of the signal at the customer's premises.

The devices that receive this programming fall into three categories:
- Analog or Digital televisions
- Cable Leased set top boxes
- Retail set-top box devices

Link back to document

C. Figure 3. Detailed Distribution Path – DBS

Described programming begins with three sources:
- Local TV broadcast stations, whose signals are received either over-the-air (OTA) or by direct fiber
- National Non-Broadcast TV Networks, whose signals are received either by satellite or direct fiber
- File Based Content, which is delivered to a Broadcast Center either by physical media or via a digital network such as direct fiber

The diagram shows, for these three sources, the subsequent distribution paths to the end customer:
- Local TV broadcast station signals are collected at the individual DMAs, processed in Local Receive Facilities and then delivered via direct fiber to a Broadcast Centers or Regional Uplink Facilities to be uplinked to specific satellites
- National Non-Broadcast TV Networks and File Based Content are both processed at a Broadcast Center and uplinked to specific satellites

The satellites receive the various transmissions and retransmit the signals back down to customers' IRDs.

The diagram shows that IRDs (in some cases) are capable of also receiving digital OTA signals.

The diagram also shows that programming services may also be delivered from a Broadcast Center via the Internet to either a customer's IRD or Internet Device.

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D. Figure 4. Detailed Distribution Path – IPTV

The diagram depicts video described programming sources into a typical IPTV Network Distribution system, processing flows from the Super Hub office to the Video Hub Regional offices, and the final distribution of the IP Central Offices to the IPTV customers. Video described programming sources fit into two categories:

- National TV Programming
- Local TV Programming

The video and audio signals from the National Network Programming category flows into the Super Hub Offices (SHOs) for Processing which includes the Video acquisition, processing and encoding of HD and SD content into the appropriate format and the insertion of national ads. The Super Hub Office (SHO) aggregates all the national content and processes it for distribution to the Video Hub Offices (VHOs).

The Local TV programming sources flow into the VHOs where the HD and SD content is received and encoded to the proper format. Each VHO serves a local market area and performs many of the same functions for locally generated programming that the SHO performs for national content, e.g., acquisition and processing of local channels and the insertion of local ads. The VHOs also serve as the distribution points for video on demand (VoD) content.

For AT&T, the aggregated output from the VHO generally passes through an Intermediate Office (IO) to a serving Central Office (CO) and finally to a neighborhood node, called a VRAD in AT&T's architecture, serving a set of local subscribers. The devices that receive the programming are the IPTV set-top boxes.

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